



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/813,855

03/31/2004

Andrew D. Wilson

13768.810.72

5579

47973

7590

05/07/2008

WORKMAN NYDEGGER/MICROSOFT

1000 EAGLE GATE TOWER

60 EAST SOUTH TEMPLE

SALT LAKE CITY, UT 84111

EXAMINER

HADZONOOZ, BANAFSHEH

ART UNIT

PAPER NUMBER

3714

MAIL DATE

DELIVERY MODE

05/07/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/813,855

**Applicant(s)**

WILSON, ANDREW D.

**Examiner**

Banafsheh Hadizonoov

**Art Unit**

3714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

### **Detailed Action**

In response to the amendment filed on 01/09/2008, claims 1-26 are pending. This office action is made **Non-Final**.

### ***Claim Objections***

Claim 5 is objected to because of the following informalities: Claim 5 is dependant upon claim 3 step (d), whereas claim 3 only has steps (a), (b) and (c). Claim 5 has been treated as being dependant on claim 4 step (d).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1,2,9,11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatano et al. (US 2005/0226467) in view of Thieme et al. (US 2006/0056662) further in view of Biswas (US 7, 120,280).**

Regarding claim 1, Hatano discloses a method for detecting a pattern object (e.g. biometric image) comprising detecting a physical property of the object (e.g. quality evaluation), computing sum of the set of template data values (see P.3, [0041]-[0042]), calculating a difference score between the stored data values and the input data values (e.g. quality evaluation) and determining whether the difference score is within a match threshold (See Fig.2, elements 203, 204). Hatano does not specifically disclose creating

template of the patterned object. However, Thieme discloses such in his invention (See abstract). Thieme also discloses acquiring input data values from the interactive display surface, each of the input values corresponding to a different one of the plurality of surface coordinate locations of the interactive display surface, each input value representing a magnitude of the physical property detected at a different one of said plurality of surface coordinate locations (e.g. encapsulating key characteristics of the enhanced image) (See P.3, [0043]-[0044]). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the features of Thieme's invention into the system and method of Thieme in order to design a system that maintains its database.

Hatano/Thieme do not specifically disclose the patterned object being placed in any arbitrary orientation or the template having quadrilateral bounding shape. Biswas discloses in his invention a method that allows placing an image on the display surface in any arbitrary orientation without affecting the template matching capability of the device (See Col.7, 13-33). Biswas further discloses quadrilateral shape of templates (See Fig.1). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the features of Biswas' invention into the system and method of Hatano/Thieme in order to design a system that is more efficient in template matching process.

Regarding claim 2, Hatano further discloses calculating the integral sum of input data and determining whether the sum the sum is within a certain threshold (See P. 3, [0041] and P.4, [0046]-0047)).

Regarding claims 9 and 20, Hatano disclose calculating the difference score for the images as a step in template matching process (See P.6, [0083]-[0085]).

Hatano/Thieme does not expressly disclose the difference score is calculated as a sum of absolute difference and a sum of squared difference. However, this is considered to be a matter of design choice.

Regarding claim 11, Hatano discloses a memory (e.g. storage unit) to carry out the steps of claim 1 (See Fig. 1, element 4-1).

**Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hatano et al. (US 2005/0226467) in view of Thieme et al. (US 2006/0056662) and further in view of Siegel et al. (US 2006/0034492).**

Regarding claim 3, Hatano further discloses the template data value comprises pixel values (See P. 2, [0031]. Hatano/Thieme does not specifically disclose that physical property comprises light and that the pixel values indicate the intensity of light. However, Siegel discloses such in his invention (See P.2, [0033]). Therefore it would have been obvious to one of ordinary skill in the art to incorporate the features of Siegel's invention into the system and method of Hatano/Thieme in order to design a system that more effective image matching process.

**Claims 4-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatano et al. (US 2005/0226467) in view of Thieme et al. (US 2006/0056662) and further in view of Biswas et al. (US 7,120,280).**

Regarding claim 4, Hatano/Thieme discloses creating plurality of templates. Hatano/thieme does not expressly disclose creating a binary mask. However, Biswas

discloses creating a binary mask comprising transformed template data values, a mask bounding region having quadrilateral shape (See Fig.1), performing the steps of claim 2 (See Fig.5). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the features of Biswas into the limitations of Hatano/Thieme's invention in order to design a system with a more effective image processing features.

Regarding claim 5, Biswas discloses generating templates, determining a distance between the first center associated with the mask bonding and a second center (See Fig.3), and determining the redundancy threshold (See Col.3, 43-61 and Fig.5).

Regarding claim 6, Biswas further discloses computing an integral image array, selecting from array elements corresponding to four corners of the quadrilateral template and computing an integral sum as a function of four array (See Col.3, 43-61, Col.5, 4 - Col.6, 9).

Regarding claims 7 and 8, Biswas further discloses a template matching process using a succession of surface coordinate locations (See Col.6, 26-44).

Regarding claim 10, Biswas discloses computing the statistical moment of the template data and the input and determining whether the data is within the threshold value (See Col.3, 43-61).

**Claims 12-19 and 21-26 are rejected under 35 U.S.C 103(a) as being unpatentable over Siegel et al. (US 2006/0034492) in view of Biswas et al. (US 7,120, 280).**

Regarding claims 12, 13, 22 and 26, Siegel discloses an interactive display (e.g. scanner), a light source that directs the light toward the opposite side of the interactive display and through the display, light sensor and a processing unit wherein the processing unit is in charge of detecting the intensity of light (See P.2, [0033], P.8, [0077]), and creating a template of the patterned object and acquiring the input data values (see Fig.8). Siegel further discloses template data values representing the intensity of reflected light and acquiring input data values from the interactive display surface with the light sensor (See P.3, [0038]-[0039]). Siegel does not specifically disclose computing sum of the set of template data and calculating the difference score to determine whether or not the score falls within a threshold. However, Biswas discloses such in his invention (See Col.3, 43-61, Fig.5, element 70 ). Biswas further discloses the quadrilateral boundary region of the templates (See Fig.1) Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the features of the Biswas invention into the limitations of the Siegel invention in order to design a system with a more effective template matching tool.

Regarding claim 14, biswas discloses that template data values comprise pixel values (See Fig.5, Col.4, 14-29).

Regarding claim 15, Biswas further discloses a mask bounding region that is used for quadrilateral template bounding (See Col.5, 4- Col.6, 25).

Regarding claim 16, Biswas discloses generating templates, determining a distance between the first center associated with the mask bonding and a second

center (See Fig.3), and determining the redundancy threshold (See Col.3, 43-61 and Fig.5).

Regarding claim 17, Biswas further discloses computing an integral image array, selecting from array elements corresponding to four corners of the quadrilateral template and computing an integral sum as a function of four array (See Col.3, 43-61, Col.5, 4 - Col.6, 9).

Regarding claim 18 and 19, Biswas further discloses computing an integral image array, selecting from array elements corresponding to four corners of the quadrilateral template and computing an integral sum as a function of four array (See Col.3, 43-61, Col.5, 4 - Col.6, 9), and a template matching process using a succession of surface coordinate locations (See Col.6, 26-44).

Regarding claim 21, Biswas discloses computing the statistical moment of the template data and the input and determining whether the data is within the threshold value (See Col.3, 43-61).

Regarding claims 23 and 24, Siegel further discloses wherein the reflected light from the image comprises a range of intensities that can have two different values for use in determining the patterned object (See P.2, [0034]-[0036]) and wherein the range of intensities comprises a gray scale (See P.2, [0034]).

Regarding claim 25, Biswas discloses a plurality of template images each corresponding to a different orientation of the patterned object (See Figs, 6a-6c).

### ***Response to Arguments***



Applicant's arguments with respect to claims 1, 11,12 and 22 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument regarding using the infrared light, the examiner notes that Siegel discloses using colored lights in order to get a better image of the objects outline. With the advancement of technology, it would have been obvious to substitute the colored light with the infrared light because such application is known to produce sharper images.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Banafsheh Hadizonooz whose telephone number is 571-272-1242. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pezzuto can be reached on (571) 272- 6788. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BH

05/01/2008

/Robert E Pezzuto/  
Supervisory Patent Examiner, Art Unit 3714